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CLAIMS

1. A method for the production of a shell mould, comprising the sequential steps of:-

(i) dipping a preformed expendable pattern into a slurry of refractory particles and colloidal liquid binder whereby to form a coating layer on said pattern,

(ii) depositing particles of refractory material onto said coating, and

(iii) drying,

steps (i) to (iii) being repeated as often as required to produce a shell mould having a primary coating layer and at least one secondary coating layer, characterised in that during at least one performance of step (ii) a gel-forming material is also deposited onto the coating layer formed in step (i).

2. The method as claimed in claim 1, wherein the method also includes the additional step (iv), carried out after the final step (iii), of applying a seal coat comprising a slurry of refractory particles and liquid binder, followed by drying.

3. The method as claimed in claim 1 or 2, wherein the gel-forming material is applied onto each secondary coating.

4. The method as claimed in any preceding claim, wherein the gel-forming material is applied onto the primary coating layer.

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5. The method as claimed in any preceding claim, wherein said gel-forming material is a super absorbent polymer.
6. The method is claimed in claim 5, wherein the polymer is polyacrylamide or polyacrylate.
7. The method as claimed in claim 5 or 6, wherein the polymer is a particulate material and at least 50wt% of the polymer particles are 300µm or smaller.
8. The method as claimed in claim 7, wherein at least 95wt% of the polymer particles are 300µm or smaller.
9. The method as claimed in any one of claims 1 to 5 wherein the refractory particles are coated with gel-forming material.
10. The method is claimed in any preceding claim which includes a step of removing the expendable pattern from the shell mould after the last step (iii) or step (iv) when present and preferably a final step of firing the resultant shell mould.
11. The method as claimed in claim 10, wherein firing is effected by heating to a temperature of from 400 to 700°C of a heating rate of from 1 to 5°C/min, followed by heating to at least 950°C at a heating rate of 5°C/min or more.

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12. The method as claimed in any preceding claim wherein the gel-forming material added during each step (ii) constitutes less than 10% by weight of the refractory particles added during that step (ii).

13. The method as claimed in claim 12, wherein the gel-forming material constitutes less than 3wt% of the refractory particles.

14. A shell mould producible by any one of claims 1 to 13.

15. A shell mould for producing a casting, said mould comprising a shell having a cavity therein in the shape of the casting, the shell comprising a plurality of layers, characterised in that at least one of said layers comprises a gel-forming material, refractory particles and gelled colloidal liquid binder.

16. The shell mould as claimed in claim 15, wherein the gel-forming material is a super absorbent polymer.

17. The shell mould as claimed in claim 16, wherein said polymer is polyacrylamide.

18. The shell mould is claimed in claim 16 or 17, wherein at least 95wt% of the polymer particles are 300µm or smaller.

19. The shell mould as claimed in anyone of claims 15 to 18, wherein the amount of gel-forming material in any layer is no more than 10% by weight of the refractory particles in that layer.